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Section II (Remarks)**Accompanying Submission of Request for Continued Examination**

Enclosed and submitted with this response to the May 1, 2006 final Office Action is a Request for Continued Examination under the provisions of 37 CFR 1.114.

Also enclosed herewith is a Credit Card Authorization Form authorizing the charging of the RCE fee of \$395 (small entity status being applicable to the present application and hereby affirmed as properly claimed), together with the added claims fee of \$175 for the 7 added dependent claims herein (discussed in the following part ("Amendment of Claims") of this Section II), for a total charge of \$570.

Authorization also is hereby given to charge any deficiency that may be properly payable in connection with the submission of this response or the accompanying RCE, to Deposit Account No. 08-3284 of Intellectual Property/Technology Law.

Amendment of Claims

Claims 1, 23, 44, 56, 66, 71, and 76 have been amended herein, to remove the reference to the extrusion coating material being "substantially circumferentially uniform" from such independent claims, as being unnecessary to patentable distinction of such claims in view of other amendments made in such claims, as discussed more fully below.

Concurrently, the "substantially circumferentially uniform" limitation removed from the independent claims has been recited in newly added dependent claims 81-87.

Claims 1, 23, 44, 56, 66, 71, and 76, in addition to removal of the "substantially circumferentially uniform" limitation therefrom, have been amended herein to recite a "string or tow" of the solid core fiber, and the step of "passing the string or tow through an extrusion die while concurrently extrusion coating" the solid core fiber.

Support for such amendment is contained at page 17, lines 1-4 of the specification, which describes:

"feeding the viscous polymeric solution 101 therethrough into an extrusion die 124; simultaneously, a string or a tow of removable core fiber 122 from a spool 120 is passed through the extrusion die

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124. A thin layer of the viscous polymeric solution 101 is therefore applied onto the removable core fiber 122, forming a coated fiber 132. ”

In addition, claims 77 and 80 have been amended for consistency under claim 76.

Claim 78 also has been amended to correct an inadvertent typographical error, in the omission of the indefinite article “a” from such claim in the Amendment filed February 16, 2006.

Claims 1-68, 71 and 76-87 are now in form for examination and allowance, consistent with the ensuing discussion of the patentability of such claims.

Rejection of Claims, and Traversal Thereof

In the May 1, 2006 Final Office Action, the Examiner rejected claims 1-68, 71 and 76-80 on non-reference and reference grounds, including:

- a rejection of claims 1-68, 71 and 76-80 under 35 USC 112, first paragraph, as failing to comply with the written description requirement; and
- a rejection of claims 1-68, 71, and 76-80 under 35 USC 103 (a) as being unpatentable over U.S. Patent No. 6,113,722 to Hoffman, et al. (“Hoffman”) in view of U.S. Patent No. 3,853,687 to Ishikawa, et al. (“Ishikawa”).

These rejections of claims 1-68, 71, and 76-80 are traversed, and reconsideration of the patentability of such claims is requested, in light of the foregoing amendments and the ensuing remarks.

A. New Matter Rejection

Claims 1-68, 71 and 76-80 were rejected in the May 1, 2006 Office Action under 35 USC 112, first paragraph, as failing to comply with the written description requirement.

Specifically, the Office contended that applicants’ prior amendment of independent claims 1, 23, 44, 56, 66, 71 and 76 to incorporate the limitation that the layers that are formed over the solid core are

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“substantially circumferentially uniform,” is not supported by the application as filed and, thus, that the limitation constituted new matter under 35 USC 132.

Although applicants have obviated this rejection by removing the “substantially circumferentially uniform” language from the independent claims, the same limitation now is presented in the newly added dependent claims 81-87, as to which the substance of the rejection will now be addressed.

The examiner’s attention is directed to FIGS. 4-8 of the instant application, reproduced below, in which the solid core is shown to have one or more coating layers applied thereto that are “substantially circumferentially uniform”:

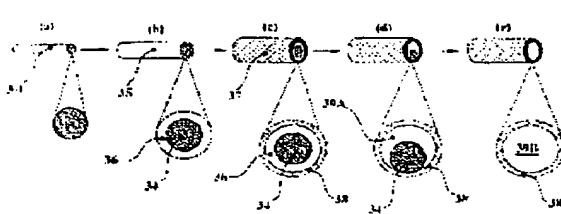


Figure 4

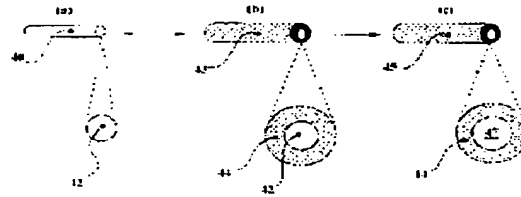


Figure 5

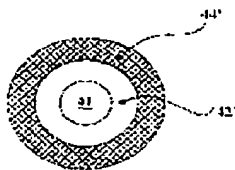


Figure 6



Figure 7

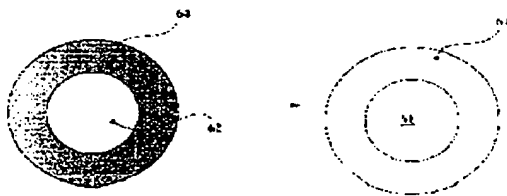


Figure 8

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Additionally, such substantial circumferential uniformity is inherent from the discussion of the extrusion process and extruded coating in the examples and applicants' reference therein to coating thickness (wall thickness) as a single numerical value (in micrometers) in tables in the examples (see, for example, Table II at page 31 of the specification, listing "wall thickness" values of different extrudates as respectively having thickness of 49, 49, 47, 128, 67 and 30 μm ; see also page 41, lines 17-18 of the specification ("the wall thickness of such fiber"). It is self-evident that reference to a single numerical value of coating thickness for a specified layer would be meaningless unless the coating were "substantially circumferentially uniform."

As stated in MPEP 2163.06, "...information contained in any one of the specification, claims or drawings of the application as filed may be added to any other part of the application without introducing new matter."

In light of the clear support in the original disclosure of the application for the limitation "substantially circumferentially uniform" in reference to the recited extruded layer(s), applicants respectfully request that the new matter rejection be withdrawn, as it now relates to dependent claims 81-87 added herein.

All currently pending claims as herein amended therefore fully comply with the requirements of §112, first paragraph and do not entail any addition of new matter (35 USC 132).

B. Patentability of Claims 1-68, 71, and 76-80 over Hoffman in view of Ishikawa

All independent claims 1, 23, 44, 56, 66, 71, and 76 have been amended herein, to recite the solid core fiber in the form of a "string or tow" and the step of passing such string or tow through an extrusion die while extrusion coating at least one layer of a removable substrate material over the solid core fiber. The language of amended claim 1 is illustrative of such amendments:

"...(a) providing a string or tow of a solid core fiber;
(b) passing the string or tow of the solid core fiber through an
extrusion die while concurrently extrusion coating at least one layer
of a removable substrate material over said solid core fiber;...."

As discussed hereinabove, such limitations are supported by the disclosure at page 17, lines 1-4 of the specification, describing:

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“feeding the viscous polymeric solution 101 therethrough into an extrusion die 124; simultaneously, a string or a tow of removable core fiber 122 from a spool 120 is passed through the extrusion die 124. A thin layer of the viscous polymeric solution 101 is therefore applied onto the removable core fiber 122, forming a coated fiber 132.”

The “string or tow” specified in the amended claims is a continuous fiber, as is apparent from FIG. 3A (reproduced below), to which the above-quoted passage refers.

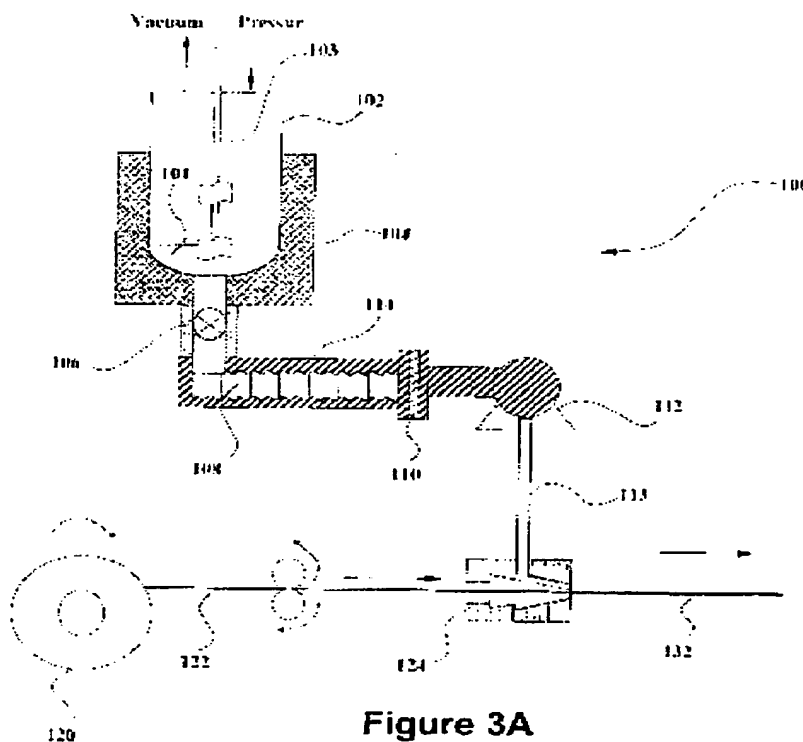


Figure 3A

Neither Hoffman et al. nor Ishikawa shows a “string or tow” processed material.

Additionally, Hoffman et al. fails to disclose extrusion coating, and there is no motivational basis for arbitrarily extracting an extrusion process from Ishikawa and arbitrarily inserting same into Hoffman et al.

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Against the failure of Hoffman et. al. to disclose extrusion coatings, the Office has contended that Hoffman et. al. at column 3, lines 6-10 “clearly discloses that the surface coating is not materials limited due to the ‘so many different processes’ available to perform the coating” (page 3, lines 8-10 of the May 1, 2006 Office Action).

For ease of ensuing discussion, the entire statement at column 3, lines 6-10 in Hoffman et al. is set out in full below:

“The surface coating is not materials limited because there are so many different processes to apply the coating, which include but are not limited to chemical vapor deposition, sputtering, electrophoresis, plasma-enhanced deposition, electroplating, electroless deposition, spraying, dipping and coacervation.”

This statement from Hoffman et al. has been used by the Office as the basis for importing into Hoffman et al. an extrusion coating process as taught by Ishikawa et. al. (“Looking at the combined teachings of the references, it is rather clear that one of ordinary skill in the art would have found the instant claims obvious”). The statement “rather clear” seems to be an attempt to hedge the lack of any motivational basis in the references for the hypothetical picking and choosing that has been used to reconstruct the applicants’ invention as claimed. The test of patentability under 35 USC 103 is not “rather clarity” – it is, as stated in MPEP 2143, a test of three enumerated criteria being satisfied:

2143 Basic Requirements of a *Prima Facie* Case of Obviousness

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant’s disclosure. *In re Vaech*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (emphasis added)

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The Office acknowledges that Ishikawa et. al. do not teach extrusion coating over a solid core, but contends that such failure is irrelevant (“Ishikawa et al. does not have to teach extrusion over a solid core” – page 3 of the Office Action), since the primary reference teaches a solid core.

Thus, the rejection has been premised on an arbitrary removal of extrusion from Ishikawa and its application to processing of a material that the Office acknowledges is NOT the material for which Ishikawa specifically provides the extrusion process. For such reason alone, the rejection fails to establish a *prima facie* case of obviousness - the express teachings of Ishikawa regarding the specific application of the Ishikawa extrusion process have been blithely brushed away, in violation of the rule of reference construction mandated by the MPEP 2143.01 (“Suggestion or Motivation to Modify the References”) that the reference must be considered as a whole:

“the proper inquiry is ‘whether there is something in the prior art as a whole to suggest the *desirability*, and thus the obviousness, of making the combination’” (emphasis added; MPEP 2143.01)

Here, the rejection is not based on considering the teachings of Ishikawa as a whole, but rather in arbitrarily extracting a processing technique from Ishikawa for use in processing a different and non-analogous material that is nowhere taught or suggested in Ishikawa.

Further, the Office states that Ishikawa et. al. is being relied on to show “the making of a fiber by extrusion coating of layer(s) and the removal of the core or sheath to arrive at the desired fiber” (page 3, lines 19-21 of the Office Action). However, the point remains that Ishikawa fails to teach or suggest any extrusion over a solid core, as required by independent claims 1, 23, 56, 66, 71, and 76 and the claims depending therefrom. Instead, Ishikawa is directed to the formation of improved synthetic fibers for fabric and clothing, in which the extrusion of two materials taught by Ishikawa cannot involve extrusion coating over a “solid core,” since both materials of Ishikawa must travel as liquids through a bed of solid (sand) particles 5 to exit the spinneret. See Ishikawa Fig. 1.

The Office also contends that those skilled in the art, not needing the irregularity of the fiber thickness as required by Ishikawa et. al., would have realized that extrusion over a solid core would have been used to make uniform circumferential layers.

This contention is based on the speculative hypothesis that one skilled in the field of the invention would as a threshold matter ignore the fact that the extrusion of the two materials taught by Ishikawa cannot

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involve extrusion coating over a “solid core,” since both materials of Ishikawa must travel as liquids through a bed of solid (sand) particles 5 to exit the spinneret, and that despite such clear and unambiguous disclosure of Ishikawa, one of skill in the art would instead apply extrusion technique from Ishikawa for entirely different and non-analogous materials than described in Ishikawa.

This is NOT a reading of Ishikawa “as a whole” and the resulting assertion by the Office at page 4, lines 1-5 that one informed by Ishikawa as disclosing “a particular process by which a desired non-uniformity is achieved” would somehow reject such “desired non-uniformity” and thereby make it undesired, and then “would realize from the primary reference that extrusion would have been used to make uniform circumferential layers.”

The speculation and use of the past tense (“would realize ...that extrusion would have been used”) is confused as a statement of rationale, when what is necessary as a basis for 103 rejection is obviousness – the straightforward, logical and direct flow of the invention from clear and motivating disclosure of prior art references – not an arcane and tangled path of speculation (“would realize ... that extrusion would have been used”) that involves wholesale disregard of essential features of a reference (deliberate ignoring of the fact that the extrusion of the two materials taught by Ishikawa cannot involve extrusion coating over a “solid core,” since both materials of Ishikawa must travel as liquids through a bed of solid (sand) particles 5 to exit the spinneret), and implementation of a technique for use with a material that is fundamentally different and non-analogous to the material for which the technique is taught to be used in its source reference (the technique of Ishikawa applied to the non-liquid material of Hoffman).

There is accordingly no basis in the combination of Hoffman and Ishikawa for applicants’ claimed invention.

Further, even if all of the foregoing were ignored, there would still be no basis for the applicants’ claimed invention in the cited references.

Hoffman et. al. suggest a number of methods by which the tubes are made, none of which is even remotely related to or analogous to applicants’ extrusion coating method.

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Indeed, viewing Hoffman et. al. as a whole, no basis is clear from which one skilled in the art would even consider extrusion a possibility, and, in any event, there is nothing that would lead or motivate one to employ an extrusion coating method.

This is conceded by the Office (“[T]he processes [disclosed in Hoffman et al.] admittedly do not include extrusion” – page 3, lines 10-11 of the May 1, 2006 Office Action).

Hoffman et. al. disclose that in the coating process of such reference, either a batch type process or a continuous process is used. In the batch process, the fibers are held by mechanical means, e.g., a fiber coating holder, or processed individually in a stirred solution or fluidized bed. In continuous processing the individual fibers are separated and placed on an appropriate carrier to carry them through the coating process in a separated state (see, e.g., column 3, lines 11-24). In processes where the fiber core to be coated is hollow, Hoffman et. al. teach that “the ends must be sealed with either sacrificial material or with a material that will be removed, for example, by machining before the fiber is removed (see column 11, lines 6-10 of Hoffman et al.). In discussing the removal of the fiber core, Hoffman et. al. note that the “coating on the end of the fiber is first removed” (See, e.g., column 5, lines 41-42).

Furthermore, Hoffman et. al. describe the manufacture of tubes of various forms and shapes including tubes that are straight, curved, or coiled, as well as ones that are conical, telescopic, tapered, etc. These are prepared by orienting the fiber in the proper configuration before applying the coating, or by selecting an appropriately shaped mandrel or similar body for the coating process.

These statements, considered as a whole, require that the Hoffman et. al. fiber be a chopped or short length fiber, and not a “a string or tow” as employed in applicants’ extrusion coating process.

Further, Hoffman et. al. describes coating methods that are suitable for the achieving the wide variety of desired tube configurations that are disclosed in such reference (curved, coiled, conical, telescopic, tapered, etc.). By contrast, extrusion methods are NOT capable of producing such shapes, and one reading Hoffman et al. therefore would logically be lead away from any contemplation of extrusion as a coating technique, since extrusion is not capable of producing curved, coiled, conical, telescoping, tapered, and other geometrically irregular tube configurations.

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In addition to such “teaching away” from applicants’ invention by Hoffman et al., there is the fact that one would logically not look to the fiber and fiber spinning art (of Ishikawa) to create discrete tube and tubular elements (as described by Hoffman et al.).

Furthermore, it is well established that a proposed hypothetical combination of reference teachings cannot be properly made where the effect of such combination is to render the prior art unsatisfactory for its intended purpose (MPEP 2143.01(V)).

Ishikawa et. al. teach a method of making fibers having “extreme irregular undulations which vary in cross-section along the entire length of the fiber.” These undulations may be on the exposed outer surface of a fiber or on the inner surface of a hollow fiber. The Ishikawa et. al. method employs a specialized spinneret apparatus that co-extrudes two molten polymers in such a way as to produce the desired core/sheath construction.

The Ishikawa et al. method has no correspondence or analogous character to the tube forming technology of Hoffman et al.

Thus, the unanswered question remains – how does Hoffman et. al., which discloses nothing whatsoever of an extrusion process, provide the necessary guidance to modify the co-extruded liquids method of Ishikawa et. al. to avoid the formation of undulations that are essential features of the Ishikawa et al. product article, let alone to apply a coating to a solid core?

How is the apparatus of Ishikawa et. al. to be modified in order to be able to eliminate the core polymer melt, despite the essential character of such liquid core medium, and then to substitute for such core liquid medium a solid core material? Hoffman et. al. provides no resolution. Hoffman et al. doesn’t even mention extrusion.

Even if one were to assume, for the sake of argument, that the tubes of Hoffman et. al. and the fibers of Ishikawa et. al. were similar, there is no logical basis for combining the processes used to make such products. Hoffman et. al. employs a solid core mold or mandrel that is then coated. Ishikawa et. al., by contrast, employs two polymer melts – liquids – that are co-extruded at the same time. These processes are fundamentally different and non-analogous in relation to one another. They employ different materials and require different equipment, different operating conditions, different operator skills,

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different equipment maintenance, different quality assurance procedures, different footprints in the manufacturing facility, etc. There is accordingly no logical basis for attempting the Frankensteinian surgery of stitching together the disparate processing systems and methods of Hoffman et al. and Ishikawa et al.


Hoffman et. al. does not allow for a co-extrusion process. Ishikawa et al. does not allow for the coating of a solid substrate. There is no guidance in either reference as to how they might be combinable and there is no motivation, suggestion or inference that would lead one to attempt the combination.

For all of the foregoing reasons, it is requested that the rejection of claims 1-68, 71, and 76-80 over Hoffman et. al. in view of Ishikawa et. al. be withdrawn.

CONCLUSION

Claims 1-68, 71 and 76-87 as amended/added herein are now in form and condition for allowance. Issue of a Notice of Allowance is therefore merited, and respectfully requested.

Respectfully submitted,



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